Alaska-DLM Essential Elements and Instructional Examples for Mathematics

Kindergarten

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ALASKA-DLM ESSENTIAL ELEMENTS AND INSTRUCTION EXAMPLES FOR KINDERGARTEN

Kindergarten Mathematics Standards: Counting and Cardinality

AK Grade-Level Clusters	AK-DLM Essential Elements	Instructional Examples
Know number names and the count sequence. **K.CC.1.** Count to 100 by ones and by tens.	**EEK.CC.1.** Starting with one, count to 10 by ones.	**Students will:** **EEK.CC.1.** Starting with any number greater than one, count to 10 by ones. Ex. Count numbers to 10 starting with one and any number great than one and less than 10. Ex. Count sequentially to 10 starting with one, independent of objects, pictures, or things as a student would recite the alphabet. Ex. Count with or without one-to-one correspondence numbers beyond 10. Ex. Count groups of 10. Ex. Count backwards from 10. **Students will:** **EEK.CC.1.** Starting with one, count to 10 by ones. Ex. Count number to 10 verbally. Ex. Count without one-to-one correspondence to 10 starting with one by rote. Ex. Sequentially sing numbers to 10 starting with one. **Students will:** **EEK.CC.1.** Starting with one, count by ones to five. Ex. Count own fingers to five verbally. Ex. Sequentially, count sequence to five either independent of objects, pictures, or things as a student would recite the alphabet or by pointing. Ex. Count without one-to-one correspondence to five. Ex. Sequentially sing numbers to five. Ex. Sing along to counting song. **Students will:** **EEK.CC.1.** Count with teacher from one to two.

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	Essential Elements	Ex. Count with the teacher to two.
K.CC.2. N/A	**EEK.CC.2.** N/A	
K.CC.3. N/A	**EEK.CC.3.** N/A	
K.CC.4. Understand the relationship between numbers and quantities; connect counting to cardinality. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. Understand that the last number name said tells the	**EEK.CC.4.** Demonstrate one-to-one correspondence, pairing each object with one and only one number and each name with only one object.	**Students will:** **EEK.CC.4.** Demonstrate one-to-one correspondence with more than one. Ex. When counting objects, say the number names in standard order and pair each object with one and only one number name. Ex. Pass pencils out to classmates and count the pencils as each classmate gets a pencil. Ex. Uses one-to-one correspondence when counting up to 10 common objects in the classroom (crayons, blocks, buttons). Ex. Count out 10 pennies to exchange for a dime. Ex. Sing a counting song and raise the correct number of fingers with each number. Ex. Count dots on dice and move forward corresponding number of spaces on game board. Ex. Round robin count to 10. **Students will:** **EEK.CC.4.** Demonstrate one-to-one correspondence, pairing each object with one and only one number and each name with only one object. Ex. Use one-to-one correspondence when counting up to five common objects in classroom (crayons, blocks, buttons).

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number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. Understand that each successive number name refers to a quantity that is one larger.		Ex. Create sets of objects to five. Ex. Place corresponding number of beans in an egg carton with each section labeled 1-5. Ex. Move beads on an abacus as another student counts one to five. Ex. Given an egg carton, place five stickers in each section. **Students will:** **EEK.CC.4.** Demonstrate one object's correspondence with one object. Ex. Use one-to-one correspondence when counting up to three common objects in classroom (crayons, blocks, buttons). Ex. Given bowls, place three balls in each. Ex. Match objects by pairing each object with one and only one other number. Ex. Place "one" letter in each student's mailbox to go home. **Students will:** **EEK.CC.4.** With guidance and support, count one object. Ex. Place "one" letter in each student's mailbox to go home. Ex. Put one object in each section of an egg carton. Ex. Indicate "one" object when asked, "Where is one <name of familiar object>?" Ex. Give one pencil to each classmate.
K.CC.5. Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.	**EEK.CC.5.** Count out up to three objects from a larger set, pairing each object with one and only one number name to tell how many.	**Students will:** **EEK.CC.5.** Count five objects out of a group of more than five objects. Count a given set of five objects, pairing each object with one and only one number name and when asked, "how many," say five without recounting. Ex. Given a box of crayons, select five crayons as requested by teacher. Ex. Given a set of five objects, count out three objects. Ex. From an array of five objects, count each object in the group only one time and tell how many was in the group without recounting the objects. Ex. Count five children out of all the children only one time and tell how many without recounting.

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		Students will: **EEK.CC.5.** Count out up to three objects from a larger set, pairing each object with one and only one number name to tell how many. Ex. Given an array of objects, count out three of the objects, counting each object only once and tell how many. Ex. Given a box of crayons, select three crayons as requested by teacher. Ex. Count out three counting bears from a group of five. Ex. Pass out three pages to each student from a stack of paper, counting "one, two, three" each time, and tell how many they gave to the students. **Students will:** **EEK.CC.5.** Count either one or two objects out of a group of five objects. Ex. Given a box of crayons, select either one or two crayons as requested by teacher. Ex. Count out two counting bears from a group of five. **Students will:** **EEK.CC.5.** Identify one object out of a group of objects. Ex. Identify between a set with one or two apples when asked, "show me one apple" and make a choice. Ex. Go to the prize box and pick one object.
K.CC.6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.	**EEK.CC.6.** Identify whether the number of objects in one group is more or less than (when the quantities are clearly different) or equal to the number of objects in another group.	**Students will:** **EEK.CC.6.** Identify whether the number of objects in one group is more or less than or equal to the number of objects in another group. Ex. Identify which group has more from two groups created by the teacher (e.g., The teacher creates two groups of manipulative objects whose total quantity is within three. Given two groups of blocks--for example, one group has seven blocks and the other has four--the student is able to identify which group has more blocks. The teacher asks which group has more and the student identifies it. Ex. Given two groups of blocks (one group has eight blocks and other has five), identify which group has less blocks. Ex. Given five papers to pass out to a group of eight students, indicate that

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		there are MORE students than papers by counting the people and then counting the papers. **Students will:** **EEK.CC.6.** Identify whether the number of objects in one group is more or less than (when the quantities are clearly different) or equal to the number of objects in another group**.** Ex. Given a choice of two boxes of blocks, one box with nine blocks and one box with four blocks, identify which box has more blocks. Ex. Given a choice of two boxes of blocks, one box with eight blocks and one box with four blocks, identify which box has fewer blocks. **Students will:** **EEK.CC.6.** Given two groups of dramatically different quantities of objects, identify which group has more. Ex. When two groups of objects are counted out to the student, identify which has more objects than another group (e.g., using matching and counting strategies). Ex. Given two bowls of snacks with a large difference in quantity, identify which has more. Ex. Given a choice of two boxes of blocks with a difference in quantity of at least twice the other, identify which has more. **Students will:** **EEK.CC.6.** Explore groups that have more and less. Ex. Using sand/water/ball tables with drastically different quantities of materials, explore the quantity while the teacher is talking about the language of more. Ex. Place silly bands/bangles/bells with drastically different quantities on the arms or legs of the students and explore the quantity of more while the teacher uses the language of more. Ex. Given two groups of buttons with very different amounts, identify the group that has “more” by pointing to picture symbols of more/less, big/small.

Kindergarten Mathematics Standards: Operations and Algebraic Thinking

AK Grade-Level Clusters	AK-DLM Essential Elements	Instructional Examples
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. **K.OA.1.** Represent addition and subtraction with objects, fingers, mental images, drawings[1], sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	**EEK.OA.1.** Represent addition as "putting together" or subtraction as "taking from" in everyday activities.	**Students will:** **EEK.OA.1.** Represent addition as "putting together" and subtraction as "taking from" with quantities to 10. Ex. Combine two sets of objects, pictures, or things to make one set of 10 through the use of assistive technology or AAC device. Ex. Take away one set of objects from 10 and determine how many remain. Ex. Using a simple story context and objects, the student puts together and takes from as appropriate by directly modeling the problem with objects, actions, or symbols. Ex. Follow directions to gather enough materials for everyone and then pass them out to each student. Ex. Put a counting bear with a group to add or take away a counting bear to subtract. **Students will:** **EEK.OA.1.** Represent addition as "putting together" or subtraction as "taking from" in everyday activities. Ex. Identify the total number of crayons when one student has three crayons and another student has two, and they put their crayons together to share. Describe the action as put together. Ex. Add to a group of crayons when told to add to the group. Ex. Take away from a group of crayons when told to take away from the group. Ex. Given five stickers, give another student one of the five stickers, and describe the action as take away. Ex. Join linking cubes to show action/process of putting together or addition.

[1] Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.)

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		Ex. Break apart linking cubes/snap blocks/bristle blocks/pop-beads to show action/process of taking from or subtraction. **Students will:** **EEK.OA.1.** Follow directions to "put together" by adding one or "take from" by taking one. Ex. Given a bowl of counting bears, add a counting bear to the bowl. The teacher calls the action "putting together" or addition. Ex. Take one when the teacher is passing out supplies and directs the students to take one. The teacher calls the action "taking away" or subtraction. Ex. Place Popsicle sticks into a circle and use language to describe addition or "putting together." Ex. Using cubes, create towers by adding or taking away one cube at a time. Ex. Remove Popsicle sticks from a circle and use language to describe subtraction or "taking from." **Students will:** **EEK.OA.1.** "Put together" or "take from" with teacher. Ex. The teacher and student together add a block to a stack while teacher says, "put together." Ex. The teacher and student together take a block from a stack while the teacher says, "take away."

Kindergarten Mathematics Standards: Measurement and Data

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Describe and compare measurable attributes. **K.MD.1.** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. **K.MD.2.** Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.* **Classify objects and count the number of objects in each category.** **K.MD.3.** Classify objects into given categories; count the numbers of objects in each category	**EEK.MD.1-3.** Classify objects according to attributes (big/small, heavy/light).	**Students will:** **EEK.MD.1-3.** Order objects according to attributes (big/smaller/smallest, heavy/lighter/lightest). Ex. Given two backpacks of different weight, describe or demonstrate which one is heavier. Ex. Given two cubes of different sizes, describe or demonstrate which cube is bigger and which cube is smaller. Ex. Compare heights of two classmates to a standard such as a meter stick. Ex. Compare sports balls (baseball, basketball, tennis ball, etc.) using various lengths of yarn. Ex. Given blocks of varying sizes, identify which are heavier/lighter and smaller/bigger. **Students will:** **EEK.MD.1-3.** Classify objects according to attributes (big/small, heavy/light)**.** Ex. Given a big book and a small book, describe or demonstrate which one is bigger and which one is smaller. Ex. Given the shoe of a student and the teacher, identify which one is bigger and which one is smaller. Ex. Sort heavy and light objects according to weight. Ex. Given the hand of a student in the class and the hand of the teacher, identify which one is bigger and which one is smaller. Ex. Given two objects of varying weight, describe or demonstrate which is heavy/light or large/small. **Students will:** **EEK.MD.1-3.** Using a model or a template, sort objects by one attribute (big/small or heavy/light). Ex. Sort counting bears by size using a model or template.

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and sort the categories by count.[2]		Ex. Given two objects, where one is at least twice the size of the other, identify which one is bigger and which one is smaller with descriptive prompts from the teacher. Ex. Identify bigger ball when shown a beach ball and a tennis ball and listening to the teacher use voice inflections and kinesthetic motions to exaggerate bigger and smaller. Ex. Identify the bigger ball when shown a golf ball and beach ball and listening to the teacher using voice inflections and motions to exaggerate. Ex. Sort objects in the classroom into groups of heavy and light (e.g., bowling ball, beach ball, and a rock). Ex. Given two pictures of real-life objects, select the bigger one. **Students will:** **EEK.MD.1-3.** Match objects by attribute big and small. Ex. Touch a large object (such as a pumpkin) as teacher describes it as big when compared to a smaller pumpkin toy. Ex. Indicate small pumpkin as teacher describes it as small when compared with a large pumpkin. Ex. Indicate if they want the big ball or the small ball.

[2] Limit category counts to be less than or equal to 10.

Mathematics Standards: Geometry

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K.G.2. Correctly name shapes regardless of their orientations or overall size. **K.G.3.** Identify shapes as two-dimensional (lying in a plane, "flat"; or three-dimensional, "solid").	**EEK.G.2-3.** Match two-dimensional shapes (circle, square, triangle).	**Students will:** **EEK.G.2-3.** Match two-dimensional shapes that vary in size (circle, square, triangle). Ex. Given an assortment of shapes that vary in size, match the shapes according to shape and size. Ex. Using computer software, select a triangle and match it to a target triangle that is a different size. Ex. Given a circle, go on a "Circle Hunt" to find other examples of circles around the school. **Students will:** **EEK.G.2-3.** Match two-dimensional shapes (circle, square, triangle).

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		Ex. Given a collection of pairs of identically sized shapes, match the shapes. Ex. Match shapes in an interactive whiteboard activity. Ex. Given four poker chips and four blocks, match the objects based on shape. **Students will:** **EEK.G.2-3.** Match a shape to its duplicate. Ex. Given one shape and shown two shapes, select the matching shape from the two choices to one of hers/his. Ex. Match a colored construction paper circle to an outline on paper. Ex. Complete a shape-sorting box. **Students will:** **EEK.G.2-3.** Repeat a model to match shapes. Ex. Match shaped objects with teacher model. Repeat after observing a teacher-directed matching activity routine involving shapes. Ex. Match shaped objects with teacher prompts. Repeat after observing the teacher match the correct shaped object to the same object. Ex. Repeat after observing the teacher use pictures cut from magazines that show circles and squares. Teacher holds up a picture and asks what shape it is, then places it on a large circle or square mat.